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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,737	01/03/2007	Stephane Rioux	484112.436USPC	4671

500 7590 07/11/2008

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EXAMINER	
BASKAR, PADMAVATHI	

ART UNIT	PAPER NUMBER
1645	

MAIL DATE	DELIVERY MODE
07/11/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/568,737	RIOUX ET AL.	
	Examiner	Art Unit	
	PADMA v. BASKAR	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21,23-26,30-33,36-48* is/are pending in the application.

4a) Of the above claim(s) *25,26,30-33 and 44-48* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21, 23, 24, 36, 37, 38 -43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/4/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

Election/Restriction

1. Applicant's response filed on 4/18/08 to restriction requirement and the amendment is acknowledged. Applicants elected Group II (claims 17, 21, 23, 24, 36, and 37), directed to polypeptide SEQ ID NO:2, chimeric polypeptides, pharmaceutical compositions comprising the polypeptide, and kit comprising the polypeptide. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Applicant requests the examiner for rejoinder of method claims. However, the allowable subject matter has not yet been identified. When the allowable subject matter is identified, the withdrawn claims will be considered for rejoinder, under MPEP § 821.04(b).

Status of claims

2. Claims 1-20, 22, 27-29, 34-35 have been cancelled
New claims 38-48 have been added.
Claims 21, 23, 31-33, 36, and 37 have been amended
Claims 25-26, 30-33 and 44-48 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention.
Claims 21, 23, 24, 36, 37 and newly added claim 38-43 are under examination as drawn to an elected invention.

Information Disclosure Statement

3. The Information Disclosure Statement submitted on 5/4/07 is acknowledged and a signed copy of the same is attached to this Office action.

Claim Rejections - 35 USC 112, first paragraph

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 21, 24, 37, 42 and 43 are rejected under 35 U.5.C. 112, first paragraph as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. **This is a new matter rejection**.

The limitation "two or more antigenic fragments of a polypeptide consisting of the amino acid sequence set forth as SEQ ID NO:2, wherein two or more antigenic polypeptide fragments each comprise at least 15 contiguous amino acids of SEQ ID NO:2 and are linked ----- SEQ ID NO:2" and "chimeric polypeptide comprising a polypeptide consisting of an amino acid sequence at least 90% identical with the amino acid sequence set forth as SEQ ID NO:2, or an antigenic fragment of the polypeptide, wherein the antigenic fragment consists of at least 15 contiguous amino acids of SEQ ID NO:2, and wherein the chimeric polypeptide elicits an antibody that specifically binds to a polypeptide that consists of the amino acid sequence set forth as SEQ ID NO:2" as claimed has no clear support in the specification and in the claims as originally filed.

In the response filed on 4/18/08 pointed to page 18, lines 13-20; page 19, lines 13-15; page 20, lines 10-13; page 23, lines 2-7; page 24, lines 25-26 and 30-32; page 26, lines 14-21; page 28, line 25 through page 29, line 10; page 30, lines 21-34; page 46, lines 15-16 for support.

The suggested support is not found persuasive because For example: page 18, lines 13-20 recite polypeptide are immunogenic or can elicit an immune response in a host and are able to raise antibodies having binding specificity, page 19, 20 recites antigenic fragments. There is nothing in the specification to suggest the chimeric polypeptide as claimed . Further, there is no mention of the specificity of the antibody elicited by the chimeric polypeptide . The subject matter claimed in claims 21, 24, 37, 42 and 43 broadens the scope of the invention as originally disclosed in the specification.

6. Claims 21, 23, 24, 36, 37, 38, 40, 42-43 are rejected under 35 U.5.C. 112, first paragraph as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a written description rejection.

The Written Description Guidelines for examination of patent applications indicates, "the written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species by actual reduction to practice, or by disclosure of relevant, identifying characteristics, i.e., structure or other physical characteristics and/or other chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show applicant was in possession of the claimed genus." (see MPEP 2163).

Claims 21 and 24 are drawn to a chimeric polypeptide and a pharmaceutical composition comprising two or more antigenic polypeptide fragments of a polypeptide consisting of the amino acid sequence SEQ. ID. NO:2, wherein the antigenic fragment consists of at least 15 contiguous amino acids of SEQ. ID. NO:2, and wherein the chimeric polypeptide elicits an antibody that specifically binds to a polypeptide that consists of the amino acid sequence set forth as SEQ. ID. NO:2. Claims 42 and 43 are drawn to a chimeric polypeptide comprising a polypeptide consisting of an amino acid sequence at least 90% identical with the amino acid sequence set forth as SEQ. ID. NO:2 or an antigenic fragment of the polypeptide, wherein the antigenic fragment consists of at least 15 contiguous amino acids of SEQ. ID. NO:2, and wherein the chimeric polypeptide elicits an antibody that specifically binds to a polypeptide that consists of the amino acid sequence set forth as antigenic fragment Claims 23, 36-38 , 40 are drawn to pharmaceutical composition and a kit comprising isolated polypeptide that consists of 90% or 95% identical with the amino acid sequence set forth as SEQ. ID. NO:2. Recitation of "90% or 95% or antigenic fragment of at least 15 contiguous amino acids of SEQ. ID. NO:2are viewed as variants/fragments of SEQ. ID. NO:2". Thus, the scope of the claims includes a genus of polypeptides and the genus is highly variant, inclusive to numerous structural variants because a significant number of structural differences between genus members is permitted. The specification teaches a single polypeptide set forth as SEQ. ID. NO:2. The specification does not place any structure, chemical or functional limitations on the variants/fragments embraced by "90% or 95% polypeptides of SEQ. ID. NO:2. The recitation of said polypeptide or chimeric polypeptide does not convey a common structure or function and is not so defined in the specification. The specification and the claim do not provide any guidance on the structure of the polypeptide and what changes can or can not be made. For example, Lederman et al (Molecular Immunology 28:1171-1181, 1991) disclose that a single amino acid substitution in a

common allele ablates binding of a monoclonal antibody (see entire document). Li et al (Proc. Natl. Acad. Sci. USA 77:3211-3214, 1980) disclose that dissociation of immunoreactivity from other activities when constructing analogs (see entire document). "A patentee will not be deemed to have invented species sufficient to constitute the genus by virtue of having disclosed a single species when … the evidence indicates ordinary artisans could not predict the operability in the invention of any species other than the one disclosed." *In re Curtis*, 354 F.3d 1347, 1358, 69 USPQ2d 1274, 1282 (Fed. Cir. 2004). For inventions in an unpredictable art, adequate written description of a genus which embraces widely variant species cannot be achieved by disclosing only one species within the genus. See, e.g., *Eli Lilly*.

Further, it is not sufficient to define it solely by its principal biological property, because an alleged conception having no more specificity than that is simply a wish to know the identity of any material with that biological property. Per the *Enzo* court's example, (*Enzo Biochem, Inc. v. Gen-Probe Inc*., 63 USPQ2d 1609 (CA FC 2002) at 1616) of a description of an anti-inflammatory steroid, i.e., a steroid (a generic structural term) couched "in terms of its function of lessening inflammation of tissues" which, the court stated, "fails to distinguish any steroid from others having the same activity or function" and the expression "an antibiotic penicillin" fails to distinguish a particular penicillin molecule from others possessing the same activity and which therefore, fails to satisfy the written description requirement. Similarly, the function of variants/fragments " eliciting antibody and binding to full length SEQ.ID.NO:2" does not distinguish a particular "variant/fragment" polypeptide from others having the same activity or function and as such, fails to satisfy the written-description requirement. Applicant has not disclosed any relevant, identifying characteristics, such as structure or other physical and/or chemical properties, sufficient to show possession of the claimed genus. Mere idea or function is insufficient for written description; isolation and characterization at a minimum are required. A description of what a material does, rather than what it is, usually does not suffice. *Eli Lilly*, 119 F.3d at 1568, 43 USPQ2d at 1406.

Structural features that could distinguish variants/fragments in the genus from others in the polypeptide class are missing from the disclosure and the claims. No common structural attributes identify the members of the genus of SEQ.ID.NO;2 that function equivalently. The general knowledge and level of skill in the art do not supplement the omitted description, because specific, not general guidance is needed. Since the disclosure does not describe the common attributes or structural characteristics that identify members of the genus, and because

the genus is highly variant, the function of the genus of "variants/fragments of SEQ.ID.NO:2 is unclear. One of skill in the art would reasonable conclude that the disclosure of a single polypeptide, i.e., SEQ ID NO:2 , does not provide a representative number of species of SEQ ID NO:2 to describe the claimed genus. The recitation of "recitation of "90% or 95% or antigenic fragment of at least 15 contiguous amino acids of SEQ ID NO:2" does not convey a common structure nor a common function. As such, generic polypeptide sequences that are unrelated via structure and function are highly variant and not conveyed by way of written description by the specification at the time of filing. As such the specification lacks written description for the highly variant genus of single polypeptide and one skilled in the art would not recognize that applicants had possession of the genus of claimed polypeptides as instantly claimed. Therefore, only the polypeptide set forth as SEQ ID NO:2, but not the full breadth of the claim meets the written description provision of 35 U.S.C. §112, first paragraph. Applicant is reminded that *Vas-Cath* makes clear that the written description provision of 35 U.S.C. §112 is severable from its enablement provision (see page 1115).

7. Claims 21,23, 24, 36,37, 38,40,42-43 are rejected under 35 U.5.C. 112, first paragraph, because the specification, while being enabling for a polypeptide comprising or consisting of the amino acid sequence set forth as SEQ ID NO: 2 , a pharmaceutical composition and a kit comprising the polypeptide SEQ ID NO: 2 does not reasonably provide enablement for chimeric polypeptide variants/fragments of SEQ ID NO: 2, a pharmaceutical composition , a kit comprising said chimeric polypeptide variants/fragments of SEQ ID NO: 2, a pharmaceutical composition , a kit comprising variants/fragments of SEQ ID NO: 2. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Claims 21 and 24 are drawn to a chimeric polypeptide and a pharmaceutical composition comprising two or more antigenic polypeptide fragments of a polypeptide consisting of the amino acid sequence SEQ ID NO:2, wherein the antigenic fragment consists of at least 15 contiguous amino acids of SEQ ID NO:2, and wherein the chimeric polypeptide elicits an antibody that specifically binds to a polypeptide that consists of the amino acid sequence set forth as SEQ ID NO:2. Claims 42 and 43 are drawn to a chimeric polypeptide comprising a polypeptide consisting of an amino acid sequence at least 90% identical with the amino acid sequence set forth as SEQ IDNO: 2, or an antigenic fragment of the polypeptide, wherein the

antigenic fragment consists of at least 15 contiguous amino acids of SEQ ID NO:2, and wherein the chimeric polypeptide elicits an antibody that specifically binds to a polypeptide that consists of the amino acid sequence set forth as SEQ ID NO:2.

Claims 23, 36-38 , 40 are drawn to pharmaceutical composition and a kit comprising isolated polypeptide that consists of 90% or 95% identical with the amino acid sequence set forth as SEQ IDNO: 2.

Recitation of the phrase “an amino acid sequence” reads upon fragments of SEQ.ID.NO:2, since 15 amino acids from SEQ.ID.NO:2 is merely one interpretation of “an amino acid sequence of SEQ.ID.NO:2 .Recitation of “90% or 95% or antigenic fragment of at least 15 contiguous amino acids of SEQ ID NO:2 are viewed as variants/fragments of SEQ ID NO:2”.

The instant claims are evaluated for enablement based on the Wands analysis. Many of the factors regarding undue experimentation have been summarized in *re Wands*, 858 F.2d 731,8 USPQ2d 1400 (Fed.Circ.1988) as follows:

(1) the nature of the invention, (2) the state of the prior art, (3) the predictability or lack thereof in the art, (4) the amount of direction or guidance present, (5) the presence or absence of working examples, (6) the quantity of experimentation necessary, (7) the relative skill of those in the art, and (8) the breadth of the claims.

The claimed invention relates to group a Streptococcus, S.pyogenes polypeptide, SHB-GAS-102, SEQ.ID.NO:2. Streptococcus are gram positive bacteria, which are differentiated by group specific carbohydrate antigens A through O and said antigens are found at the cell surface. *S. pyogenes* isolates are distinguished by type-specific M protein antigens. M proteins are important virulence factors. which are highly variable both in molecular weights and in sequences. Indeed, more than IO0-M protein types have been identified” on the basis of antigenic differences.

S. pyogenes causes pharyngitis, erysipelas and impetigo, scarlet fever, and invasive diseases such as bacteremia and necrotizing fasciitis and is sensitive to antibiotics.
S. pyogenes SHB-GAS-102 gene was cloned from genomic DNA of serotype M1 *S. pyogenes* Strain ATCC700294 . SHB-GAS-102 gene encodes a 178 amino-acid
residues polypeptide with a predicted pl of 9.55 and a predicted molecular mass of 19,431.0 Da.

The distribution of the SHB-GAS-102 polypeptide among S.pyogenes isolates was tested by immunoblot analysis using pooled mouse anti-SHB-GAS-102 sera . the sera

recognized a collection of 13 strains of *S. pyogenes* representing 13 M serotypes (see Table 3) 1, 2, 3, 4, 5, 6 ,11, 12, 18, 22, 28, 58 and 77. SHB-GAS-102 elected specific antibodies and found to protect mice against Type 3, S.pyogenes. However, variants/fragments of SEQ.ID.NO:2 have not yet been characterized. The specification and the claim do not provide any guidance what changes can or can not be made in SHB-GAS-102. For example, Lederman et al (Molecular Immunology 28:1171-1181, 1991) disclose that a single amino acid substitution in a common allele ablates binding of a monoclonal antibody (see entire document). Li et al (Proc. Natl. Acad. Sci. USA 77:3211-3214, 1980) disclose that dissociation of immunoreactivity from other activities when constructing analogs (see entire document). Further , the teachings of the Kokolus et al , U.S. Patent 5,807,978 (see column 4)indicate that the ability of a given oligopeptide to elicit antibody responses that cross-react with the native molecule currently is unpredictable. One reason is that oligopeptides only have the ability to represent linear or "continuous" epitopes. "Discontinuous" epitopes are composed of sequences from throughout an antigen and rely on folding of the protein to bring the sequences into close proximity of one another. Clearly, oligopeptides are incapable of representing such epitopes. Although continuous epitopes are structurally less complicated than discontinuous ones, a poor understanding of how the immune system recognizes and responds to these antigenic species is not predictable.

Thus, it is apparent that change in a polypeptide, SEQ.ID.NO:2 can lead to loss of functional properties. Therefore, variants/fragments must be considered highly unpredictable, requiring a specific demonstration of efficacy on a case-by-case basis. Therefore, the skilled artisan would not be able to use such broadly claimed chimeric polypeptide or polypeptide SEQ.ID.NO:2 in a pharmaceutical composition or in a kit. In view of the unpredictability of the art, the lack of teachings of the specification, it would require undue experimentation on the part of the skilled artisan to practice the invention as broadly claimed.

The specification fails to provide an enabling disclosure for the full scope of claimed chimeric polypeptide, pharmaceutical composition or a kit comprising said chimeric polypeptide or pharmaceutical or kit comprising polypeptide SEQ.ID.NO:2 as discussed above because it fails to provide any guidance regarding how to make and use variants/fragments of SEQ.ID.NO:2.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 21, 23,36, 37, 38, 39, 40, 41 and 42 rejected under 35 U.S.C. 102(b) as being anticipated by Telford J et al WO200234771 (Publication date,02-MAY-2002). As this document is 4525 pages, the examiner is sending the pertinent pages and the sequence alignment.

Claims 23 and 38-41 are drawn to a pharmaceutical composition comprising an isolated polypeptide that consists of 90% or 95% identical with the amino acid sequence set forth as SEQ IDNO: 2, said polypeptide is capable of eliciting an antibody that specifically binds to a polypeptide that consists of the amino acid sequence set forth as SEQ ID NO:2 or isolated polypeptide comprising or consisting of SEQ.ID.NO:2.

Claims 36 and 37 are drawn to a kit comprising an isolated polypeptide that consists of 90% or 95% identical with the amino acid sequence set forth as SEQ IDNO: 2 or a chimeric polypeptide, said polypeptide is capable of eliciting an antibody that specifically binds to a polypeptide that consists of the amino acid sequence set forth as SEQ ID NO:2 .

Claims 21 and 42 are drawn to a chimeric polypeptide comprising two or more fragments of SEQ.ID.NO:2 , wherein two or more fragments each comprise 15 contiguous amino acids or a polypeptide consisting of an amino acid sequence at least 90% identical with the amino acid sequence set forth as SEQ ID NO:2, or an antigenic fragment of the polypeptide, wherein the antigenic fragment consists of at least 15 contiguous amino acids of SEQ ID NO:2, and wherein the chimeric polypeptide elicits an antibody that specifically binds to a polypeptide that consists of the amino acid sequence set forth as SEQ ID NO:2.

Telford J et al disclose a pharmaceutical composition (comprising a pharmaceutically acceptable carrier (see entire document, particularly, abstract, page 20, lines 44-48), and an isolated polypeptide SEQ.ID.NO:6344, which is 100% identical to the claimed polypeptide (see the sequence alignment and SEQ.ID.NO:6344 in the Patent). As the polypeptide is 100% identical to the clamed polypeptide, the polypeptide is capable of eliciting an antibody that specifically binds to a polypeptide that comprise or consists of the amino acid sequence set

forth as SEQ ID NO:2. Therefore, the prior art reads on claims 23,38, 39, 41. and 41. Tedford et al also teaches chimeric polypeptide comprising antigenic fragments of SEQ.ID.NO:6344 (100% identical to the claimed polypeptide SEQ ID NO:2, example see page 5, lines 19-34, page 3056, lines 13-15). The prior art also discloses kits comprising the isolated polypeptide of SEQ.ID.NO:6344, which is 100% identical to the claimed polypeptide SEQ ID NO:2 or chimeric polypeptide (page 27, lines 38-40 and page 5, lines 19-34, page 3056, lines 13-15.). Thus the prior art anticipates the claimed invention.

```
S   Streptococcus pyogenes.

XX
PN   WO200234771-A2.
XX
PD   02-MAY-2002.
XX
PF   29-OCT-2001; 2001WO-GB004789.
XX
PR   27-OCT-2000; 2000GB-00026333.
PR   24-NOV-2000; 2000GB-00028727.
PR   07-MAR-2001; 2001GB-00005640.
XX
PA   (CHIR ) CHIRON SPA.
PA   (GENO-) INST GENOMIC RES.
XX
PI   Telford J,  Masignani V,  Margarit Y RosI,  Grandi G,  Fraser C;
PI   Tettelin H;
XX
DR   WPI; 2002-352536/38.
DR   N-PSDB; ABN69216.
DR   PC:NCBI; gi13621383.
DR   PC:SWISSPROT; Q9A1V9,Q7CNP4,Q7CFK7,Q5XEC0,Q48VT4.
XX
PT   New Streptococcus protein for the treatment or prevention of infection or
PT   disease caused by Streptococcus bacteria, such as meningitis, and for
PT   detecting a compound that binds to the protein.
XX
PS   Claim 1; Page 3799; 4525pp (SEQ.ID.NO;6344) ; English.
XX
CC   The invention relates to a protein (ABP25413-ABP30895) from group B
CC   streptococcus/GBS (Streptococcus agalactiae) or group A streptococcus/GAS
CC   (Streptococcus pyogenes), comprising one of 5483 sequences (S1), given in
CC   the specification. The proteins have antibacterial and antiinflammatory
CC   activity. (I), nucleic acids encoding (I), ABN66044-ABN71526 and
CC   antibodies that bind (I) are used in the manufacture of medicaments for
CC   the treatment or prevention of infection or disease caused by
CC   Streptococcus bacteria, particularly S. agalactiae and S. pyrogenes.
CC   Nucleic acids encoding (I) are used to detect Streptococcus in a
CC   biological sample. (I) is used to determine whether a compound binds to
CC   (I). A composition comprising (I) or a nucleic acid encoding (I), may be
CC   used as a vaccine or diagnostic composition. The disease caused by
CC   Streptococcus that is prevented or treated may be meningitis. Nucleic
CC   acid encoding (I) may be used to recombinantly produce (I) and may be
CC   used in gene therapy. Antibodies to (I) are used for affinity
CC   chromatography, immunoassays, and distinguishing/identifying
CC   Streptococcus proteins
SQ   Sequence 178 AA;


  Query Match             100.0%;  Score 902;  DB 5;  Length 178;
```

```
  Best Local Similarity   100.0%;  Pred. No. 6e-81;
  Matches  178;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MSRIGNKVITMPAGVELTNNNNVITVKGPKGELTREFNKNIEIKVEGTEITVVRPNDSKE 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MSRIGNKVITMPAGVELTNNNNVITVKGPKGELTREFNKNIEIKVEGTEITVVRPNDSKE 60

Qy         61 MKTIHGTTRANLNNMVVGVSEGFKKDLEMKGVGYRAQLQGTKLVLSVGKSHQDEVEAPEG 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 MKTIHGTTRANLNNMVVGVSEGFKKDLEMKGVGYRAQLQGTKLVLSVGKSHQDEVEAPEG 120

Qy        121 ITFTVANPTSISVEGINKEVVGQTAAYIRSLRSPEPYKGKGIRYVGEYVRLKEGKTGK 178
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 ITFTVANPTSISVEGINKEVVGQTAAYIRSLRSPEPYKGKGIRYVGEYVRLKEGKTGK 178
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Conclusion

9. No claims are allowed.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure

a) Doucette-Stamm et al as shown below discloses a chimeric polypeptide.

```
; Sequence 4801, Application US/09107433
; Patent No. 6800744
;   GENERAL INFORMATION:
;        APPLICANT: Lynn A Doucette-Stamm  and David Bush
;        TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID
;                            SEQUENCES RELATING TO STREPTOCOCCUS PNEUMONIAE   FOR DIAGNOSTICS AND
;                            THERAPEUTICS
;        NUMBER OF SEQUENCES: 5206
;        CORRESPONDENCE ADDRESS:
;             ADDRESSEE: GENOME THERAPEUTICS CORPORATION
;             STREET: 100 Beaver Street
;             CITY: Waltham
;             STATE: Massachusetts
;             COUNTRY: USA
;             ZIP: 02354
;        COMPUTER READABLE FORM:
;             MEDIUM TYPE: CD/ROM ISO9660
;             COMPUTER: <Unknown>
;             OPERATING SYSTEM: <Unknown>
;             SOFTWARE: <Unknown>
;        CURRENT APPLICATION DATA:
;             APPLICATION NUMBER: US/09/107,433
;             FILING DATE: 30-Jun-1998
;        PRIOR APPLICATION DATA:
;             APPLICATION NUMBER: 60/ 085131
;             FILING DATE: May 12, 1998
;             APPLICATION NUMBER: 60/051553
;             FILING DATE: July 2, 1997
;        ATTORNEY/AGENT INFORMATION:
;             NAME: Ariniello, Pamela Deneke
;             REGISTRATION NUMBER: 40,489
;             REFERENCE/DOCKET NUMBER: GTC-011
;        TELECOMMUNICATION INFORMATION:
;             TELEPHONE: (781)893-5007
;             TELEFAX: (781)893-8277
;   INFORMATION FOR SEQ ID NO: 4801:
;        SEQUENCE CHARACTERISTICS:
;             LENGTH: 183 amino acids
;             TYPE: amino acid
;             TOPOLOGY: linear
```

```
;        MOLECULE TYPE: protein
;        HYPOTHETICAL: YES
;        ORIGINAL SOURCE:
;             ORGANISM: Streptococcus pneumoniae
;        FEATURE:
;             NAME/KEY:  misc_feature
;             LOCATION: (B) LOCATION 1...183
;        SEQUENCE DESCRIPTION: SEQ ID NO: 4801:
US-09-107-433-4801

  Query Match             87.1%;  Score 786;  DB 2;  Length 183;
  Best Local Similarity   84.8%;  Pred. No. 3.3e-77;
  Matches  151;  Conservative   17;  Mismatches   10;  Indels    0;  Gaps    0;

Qy          1 MSRIGNKVITMPAGVELTNNNNVITVKGPKGELTREFNKNIEIKVEGTEITVVRPNDSKE 60
              ||||||||| :|||||| ||:||:||||||||||||||:|:|||:|||||:|: |||||||
Db          6 MSRIGNKVIVLPAGVELANNDNVVTVKGPKGELTREFSKDIEIRVEGTEVTLHRPNDSKE 65

Qy         61 MKTIHGTTRANLNNMVVGVSEGFKKDLEMKGVGYRAQLQGTKLVLSVGKSHQDEVEAPEG 120
              |||||||||| |||||||||||||:|||:||||||||||:||||:||||| ||||||||
Db         66 MKTIHGTTRALLNNMVVGVSEGFKKELEMRGVGYRAQLQGSKLVLAVGKSHPDEVEAPEG 125

Qy        121 ITFTVANPTSISVEGINKEVVGQTAAYIRSLRSPEPYKGKGIRYVGEYVRLKEGKTGK 178
              ||| : |||:| | ||:||||||||||:||||||||||||||||:|| |||||||
Db        126 ITFELPNPTTIVVSGISKEVVGQTAAYVRSLRSPEPYKGKGIRYVGEFVRRKEGKTGK 183
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b) Wang et al disclose an isolated polypeptide SEQ ID NO 74330, which is 100% identical to the claimed SEQ.ID.NO:2.

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OS   Streptococcus pyogenes.
XX
PN   WO200277183-A2.
XX
PD   03-OCT-2002.
XX
PF   21-MAR-2002; 2002WO-US009107.
XX
PR   21-MAR-2001; 2001US-00815242.
PR   06-SEP-2001; 2001US-00948993.
PR   25-OCT-2001; 2001US-0342923P.
PR   08-FEB-2002; 2002US-00072851.
PR   06-MAR-2002; 2002US-0362699P.
XX
PA   (ELIT-) ELITRA PHARM INC.
XX
PI   Wang L,  Zamudio C,  Malone C,  Haselbeck R,  Ohlsen KL,  Zyskind JW;
PI   Wall D,  Trawick JD,  Carr GJ,  Yamamoto R,  Forsyth RA,  Xu HH;
XX
DR   WPI; 2003-029926/02.
DR   N-PSDB; ACA50276.
DR   PC:NCBI; gi13621383.
DR   PC:SWISSPROT; Q9A1V9,Q7CNP4,Q7CFK7,Q5XEC0,Q48VT4.
XX
PT   New antisense nucleic acids, useful for identifying proteins or screening
PT   for homologous nucleic acids required for cellular proliferation to
PT   isolate candidate molecules for rational drug discovery programs.
XX
PS   Claim 25; SEQ ID NO 74330; 1766pp; English.
XX
CC   The invention relates to an isolated nucleic acid comprising any one of
CC   the 6213 antisense sequences given in the specification where expression
CC   of the nucleic acid inhibits proliferation of a cell. Also included are:
CC   (1) a vector comprising a promoter operably linked to the nucleic acid
CC   encoding a polypeptide whose expression is inhibited by the antisense
CC   nucleic acid; (2) a host cell containing the vector; (3) an isolated
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CC   polypeptide or its fragment whose expression is inhibited by the
CC   antisense nucleic acid; (4) an antibody capable of specifically binding
CC   the polypeptide;(5) producing the polypeptide; (6) inhibiting cellular
CC   proliferation or the activity of a gene in an operon required for
CC   proliferation; (7) identifying a compound that influences the activity of
CC   the gene product or that has an activity against a biological pathway
CC   required for proliferation, or that inhibits cellular proliferation; (8)
CC   identifying a gene required for cellular proliferation or the biological
CC   pathway in which a proliferation-required gene or its gene product lies
CC   or a gene on which the test compound that inhibits proliferation of an
CC   organism acts; (9) manufacturing an antibiotic; (10) profiling a
CC   compound's activity; (11) a culture comprising strains in which the gene
CC   product is overexpressed or underexpressed; (12) determining the extent
CC   to which each of the strains is present in a culture or collection of
CC   strains; or (13) identifying the target of a compound that inhibits the
CC   proliferation of an organism. The antisense nucleic acids are useful for
CC   identifying proteins or screening for homologous nucleic acids required
CC   for cellular proliferation to isolate candidate molecules for rational
CC   drug discovery programs, or for screening homologous nucleic acids
CC   required for proliferation in cells other than S. aureus, S. typhimurium,
CC   K. pneumoniae or P. aeruginosa. The present sequence is encoded by one of
CC   the target prokaryotic essential genes. Note: The sequence data for this
CC   patent did not form part of the printed specification, but was obtained
CC   in electronic format directly from WIPO at
CC   ftp.wipo.int/pub/published_pct_sequences
CC
SQ   Sequence 178 AA;

  Query Match             100.0%;  Score 902;  DB 6;  Length 178;
  Best Local Similarity   100.0%;  Pred. No. 6e-81;
  Matches  178;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MSRIGNKVITMPAGVELTNNNNVITVKGPKGELTREFNKNIEIKVEGTEITVVRPNDSKE 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MSRIGNKVITMPAGVELTNNNNVITVKGPKGELTREFNKNIEIKVEGTEITVVRPNDSKE 60

Qy         61 MKTIHGTTRANLNNMVVGVSEGFKKDLEMKGVGYRAQLQGTKLVLSVGKSHQDEVEAPEG 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 MKTIHGTTRANLNNMVVGVSEGFKKDLEMKGVGYRAQLQGTKLVLSVGKSHQDEVEAPEG 120

Qy        121 ITFTVANPTSISVEGINKEVVGQTAAYIRSLRSPEPYKGKGIRYVGEYVRLKEGKTGK 178
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 ITFTVANPTSISVEGINKEVVGQTAAYIRSLRSPEPYKGKGIRYVGEYVRLKEGKTGK 178
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11. Papers related to this application may be submitted to Group 1600, AU 1645 by facsimile transmission. Papers should be transmitted via the PTO Fax Center, which receives transmissions 24 hours a day and 7 days a week. The transmission of such papers by facsimile must conform to the notice published in the Official Gazette, 1096 OG 30, November 15, 1989. The Right Fax number is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PMR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PMR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PMR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Padma Baskar Ph.D., whose telephone number is ((571) 272-0853. A message may be left on the Examiner's voice mail system. The Examiner can normally be reached on Monday to Friday from 6.30 a.m. to 4.00 p.m. except First Friday of each bi-week.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shanon Foley can be reached on (571) 272-0898.

Respectfully,

/Padma v Baskar/

Examiner, Art Unit 1645